Health by Numbers

Rhode Island Department of Health
Patricia A. Nolan, MD, MPH, Director

Office of Health Statistics
*Turning numbers into knowledge*
www.healthri.org

Vol. 5, No. 8 September 2003 Edited by Jay S. Buechner, PhD

# Utilization of Hospital Inpatient Care in Rhode Island, 2000

**Jay S. Buechner, PhD,
Susan A. Oberbeck, MSW, MHA,
Karen A. Williams, MPH,
and Edward F. Donnelly, RN, MPH**

Hospital care is the largest component of the health care system in Rhode Island and the nation, based on health care expenditures, and inpatient care is the largest component of hospital care. Data on the utilization of hospital inpatient care in the state are useful for monitoring patterns of care in a key part of the health care system as well as for describing acute and chronic health conditions in the population. These data have been summarized in a previous report for the state's eleven acute-care general hospitals;[1] this study presents excerpts from the first summary report that includes all fourteen of the state's private hospitals.[2]

**Methods.** Under licensure regulations, all acute-care hospitals and the only inpatient rehabilitation facility in Rhode Island report to the Department of Health, Office of Health Statistics, a defined set of data items on each inpatient discharge.[3] Acute care general hospitals have been reporting since October 1, 1989; as of October 1, 1998, two psychiatric specialty hospitals and the inpatient rehabilitation facility began reporting. The analysis included discharges from January 1, 2000, through December 31, 2000, and employed data on the patient's age, sex, principal diagnosis, procedures (up to 10 per discharge), and length of stay. Diagnoses and procedures are coded in the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM), and were grouped as for published national data.[4] Age-specific and overall rates were computed using 2000 Census data for the state; rates were not adjusted for cross-border provision of care. Average length-of-stay was computed after assigning a stay of one day to patients who were admitted but did not stay overnight. Comparative data for the Northeast region (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania) and the nation were extracted from an annually-published national report.[4]

**Results.** The fourteen hospitals reported 121,447 discharges with 661,224 days of care in 2000, for an average length of stay of 5.4 days. (Table 1.) The discharge rate per 1,000 population was 115.8, slightly higher than the discharge rate for the nation (114.0), but 14.5% lower than the rate for the Northeast states (135.5). (Figure 1)

By gender, females accounted for the majority of discharges (59.9%) and hospital days used (56.4%). The discharge rate per 1,000 for females (133.6) was 38.3% higher than the rate for males (96.6). (Figure 1) Both the male and the female rates in Rhode Island were lower than the corresponding rates in the Northeast, 17.7% lower for males and 12.4% for females. Compared to the nation, males in Rhode Island had higher discharge rates (5% higher) and females had slightly (1.1%) lower rates.

***Table 1.*** ***Private Short-Stay Hospitals in Rhode Island, 2000***

| Hospital | Licensed Beds | Discharges | Average Length of Stay |
|---|---|---|---|
| All Hospitals | 3,196 | 121,447 | 5.4 |
| Bradley | 60 | 759 | 32.3 |
| Butler | 97 | 4,902 | 7.1 |
| Kent County | 359 | 13,723 | 5.6 |
| Landmark | 214 | 7,087 | 4.4 |
| Memorial | 294 | 7,837 | 5.0 |
| Miriam | 247 | 11,714 | 5.0 |
| Newport | 176 | 5,668 | 4.9 |
| Rehabilitation | 82 | 738 | 20.1 |
| Rhode Island | 719 | 27,393 | 5.5 |
| Roger Williams | 220 | 8,269 | 5.1 |
| South County | 100 | 5,241 | 4.1 |
| St. Joseph's | 366 | 11,191 | 6.8 |
| Westerly | 125 | 4,440 | 4.2 |
| Women & Infants | 137 | 12,485 | 3.5 |

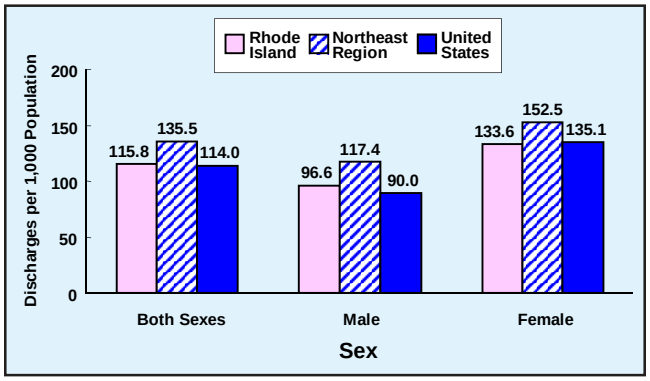


***Figure 1.*** *Hospital inpatient discharges per 1,000 population, by sex, Rhode Island, Northeast region, and United States, 2000.*

Discharge rates increased with age from the youngest age group (0 – 14 years) to the oldest (65 years and older). (Figure 2) Rates for Rhode Island were lower than national rates in each age group, ranging from 0.5% lower for those ages 15 - 44 years to 14.2% lower for those ages 0 – 14 years.

The most common principal diagnosis group among hospital discharges in Rhode Island was heart disease, as was true for the nation, followed by deliveries. (Figure 3 – Note change in scale.) For both, the state's rates were slightly lower than the corresponding national rates (4.5% and 8.3%, respectively). Rhode Islanders experienced higher discharge rates than the nation for the next two

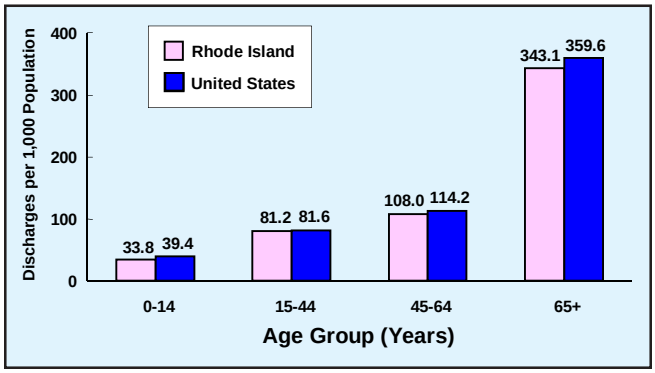


***Figure 2.*** *Hospital inpatient discharges per 1,000 population, by age group, Rhode Island and United States, 2000.*

most common diagnosis groups, psychoses (69.6% higher) and malignant neoplasms (28.1% higher). For the three next-ranking diagnosis groups, discharge rates for the state were similar to national rates.

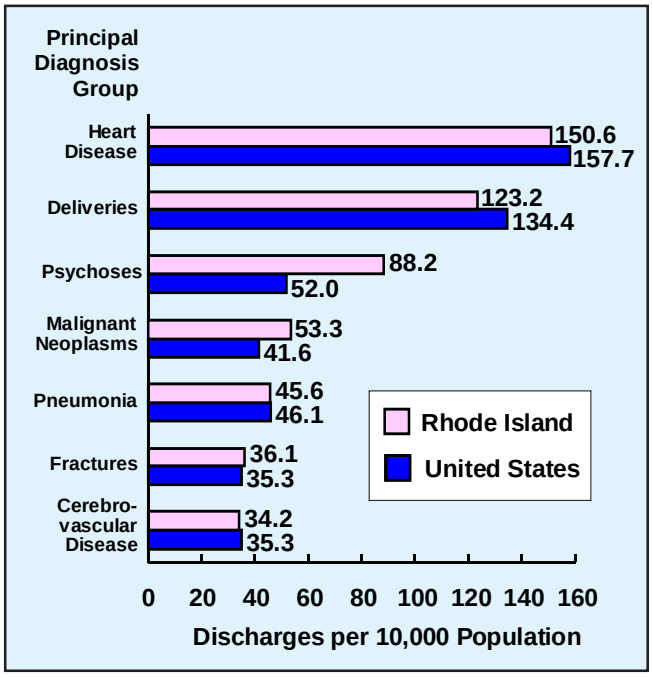


***Figure 3.*** *Hospital inpatient discharges per 10,000 population, by principal diagnosis group, Rhode Island and United States, 2000.*

**Discussion.** The patterns of utilization of inpatient care in Rhode Island during 2000 closely resemble the patterns seen nationally. However, overall utilization in the state is substantially lower than for other states in the Northeast. State rates are clearly influenced by the large proportion of elderly residents, in that the statewide discharge rate for all ages is slightly higher than the national rate despite each age-specific rate being lower than the corresponding national rate. Among the most commonly reported principal diagnosis groups, there are two where Rhode Island's discharge rates are substantially higher than national rates – psychoses and malignant neoplasms. These large observed differences merit further investigation to understand their source.

Because of the breadth of information obtained on hospital inpatients, their health conditions, the medical care provided to them, and the details of their hospital stays, these patient-level data are widely useful for public health purposes as well as for monitoring the health care system. Previous analyses reported in this journal and elsewhere and ongoing projects at the Department of Health have addressed health issues such as heart disease, motor vehicle injuries, head and spinal cord injuries, gall bladder disease, asthma, cesarean section rates, neonatal care, congenital anomalies, urinary tract infections, and the quality of hospital inpatient care, among others. Growing public health interest in these data assure that future uses of the data will be even more encompassing.

*Jay S. Buechner, PhD, is Chief, Office of Health Statistics, and Clinical Assistant Professor of Community Health, Brown Medical School.*

*Susan A. Oberbeck, MSW, MHA, is a consultant to the Office of Health Statistics.*

*Karen A. Williams, MPH, is Public Health Epidemiologist, Office of Health Statistics.*

*Edward F. Donnelly, RN, MPH, is Senior Public Health Epidemiologist, Office of Health Statistics, and Clinical Teaching Associate, Department of Community Health, Brown Medical School.*

## References

1. Casey DB, Buechner JS. *Utilization of Rhode Island Hospitals, October 1, 1994 – September 30, 1995.* Providence RI: Rhode Island Department of Health. October 1997.
2. Oberbeck SA, Donnelly EF, Buechner JS. *Utilization of Rhode Island Hospitals, 2000.* Providence RI: Rhode Island Department of Health. September 2003
3. Rhode Island Department of Health, Rules and Regulations for Licensing of Hospitals, Appendix A, http://www.rules.state.ri.us/rules/released/pdf/DOH/DOH_2372.pdf.
4. Hall MJ, Owings MF. *2000 National Hospital Discharge Survey*. Advance data from vital and health statistics, no. 329. Hyattsville MD: National Center for Health Statistics. 2002.

***Originally published in the September 2003 issue of Medicine & Health / Rhode Island***

**HEALTH**

Rhode Island Department of Health
Office of Health Statistics
3 Capitol Hill
Providence, RI 02908

*Change service requested*
*401 222-2550*